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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,343

04/15/2004

Jong Shik Yoon

TI 37043

8658

23494

7590

06/14/2006

TEXAS INSTRUMENTS INCORPORATED

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DALLAS, TX 75265

EXAMINER

BLUM, DAVID S

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A.D

Office Action Summary	Application No.	Applicant(s)	
	10/825,343	YOON ET AL.	
	Examiner	Art Unit	
	David S. Blum	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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This action is in response to the election filed 3/2/06.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-6 in the reply filed on 3/2/06 is acknowledged.
2. Claims 7 and 8-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species and invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/2/06.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (US006297128B1).

Kim teaches all of the positive steps of claims 1-4, and 6 as follows.

Regarding claim 1, Kim forms an active area (outside of trenches, figure 2) bounded by an isolation structure (figure 2), places at least one stress adjustor (112) adjacent the

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active area. Kim is silent as to modify the majority carrier within a channel region of a MOS transistor, but as the materials are identical to the instant specification, the same functional result would occur.

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be used does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) MPEP 2114.

Regarding claim 2, Kim removes silicon to form at least two trenches (figure 2). Figure 3 also reads on the instant claim by removing silicon to form a trench, filling the trench, removing trench fill in the center area and refilling the middle trench, the outside area becomes two trenches (as described in claim 3 below).

Regarding claim 3, figure 3 shows removing a portion of the trench structure and filling the trench with an insulator.

Regarding claim 4, the filling of the trench includes a high density plasma oxide deposition (column 4 lines 48-49).

Regarding claim 6, the stress adjuster is configured to reduce a compressive stress (column 4 lines 63-67).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US006297128B1) in view of Wolf (page 459).

Kim teaches all of the positive steps of claim 5 as recited above in regard to claim 3 above except for the trench fill including a spin-on-glass.

Regarding claim 5, Kim teaches filling the trenches with HDPCVD as in claim 4. Wolf (page 459) teaches filling trenches with HDPCVD or a spin-on-glass (SOG) giving the two methods an art recognized equivalence. It is noted that the instant application fills the trench with either HDPCVD (claim 4, paragraph 0022) or a SOG (claim 5, also paragraph 0022) and teaches no criticality between the two methods.

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or of any unexpected results arising there from. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in the claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1515, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

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It would be obvious to one skilled in the requisite art at the time of the invention to modify Kim to substitute SOG for HDPCVD as taught by Wolf to have an art recognized equivalence.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is David.blum@USPTO.gov .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (571)-272-1702. Our facsimile number all patent correspondence to be entered into an application is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David S. Blum

June 8, 2006